

Checklist of the leaf-mining flies (Diptera, Agromyzidae) of Finland

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Abstract

A checklist of the Agromyzidae (Diptera) recorded from Finland is presented. 279 (or 280) species are currently known from the country. *Phytomyza linguae* Lundqvist, 1947 is recorded as new to Finland.

Keywords

Checklist, Finland, Diptera, biodiversity, faunistics

Introduction

The Agromyzidae are called the leaf-miner or leaf-mining flies and not without reason, although a substantial fraction of the species feed as larvae on other parts of living plants. While Agromyzidae is traditionally placed in the superfamily Opomyzoidea, its exact relationships with other acalyptrate Diptera are poorly understood (see for example Winkler et al. 2010).

Two subfamilies are recognised within the leaf-mining flies: Agromyzinae and Phytomyzinae. Both are now recognised as natural groups (Dempewolf 2005, Scheffer et al. 2007). Unfortunately the genera are not as well defined: at least *Ophiomyia*, *Phytoliriomyza* and *Aulagromyza* are paraphyletic in DNA sequence analyses (see Scheffer et al. 2007). The same studies and Winkler et al. (2009) suggest that *Chromatomyia*

consists of at least two separate groups of species within *Phytomyza*, and *Napomyza* (which is given a status of a subgenus of *Phytomyza* by Winkler et al. (2009)) also needs re-evaluation. For the purposes of this checklist, a conservative approach is adopted with *Chromatomyia* and *Napomyza* as separate genera.

Richard Frey was the first Finnish dipterist to study the agromyzid fauna of the country in detail (Frey 1937, 1946). L. Tiensuu and E. Thuneberg continued Frey's work but most of their work remained unpublished until Nowakowski (1967) and Spencer (1976) reviewed the major Finnish agromyzid collections. Spencer's book remains the primary identification tool for North European Agromyzidae. Interest in Finnish agromyzids has remained sporadic. The Finnish species were last listed by Hackman (1980).

Number of species:

World: 3004 spp. (M. Černý & M. von Tschirnhaus, pers. comm., March 2014)

Europe: 914 species (von Tschirnhaus, pers. comm., March 2014)

Finland: 279–280 species

Faunistic knowledge level in Finland: average

Checklist

suborder Brachycera Macquart, 1834 clade Eremoneura Lameere, 1906 clade Cyclorrhapha Brauer, 1863 infraorder Schizophora Becher, 1882 clade Muscaria Enderlein, 1936 parvorder Acalyptratae Macquart, 1835 superfamily Opomyzoidea Newman, 1834

AGROMYZINAE Fallén, 1823
AGROMYZA Fallén, 1810
Agromyza abiens Zetterstedt, 1848
Agromyza albipennis Meigen, 1830
Agromyza albitarsis Meigen, 1830
Agromyza alnibetulae Hendel, 1931
Agromyza alnivora Spencer, 1969
Agromyza alunulata (Hendel, 1931)
Agromyza ambigua Fallén, 1823
= niveipennis Zetterstedt, 1848
Agromyza anthracina Meigen, 1830

AGROMYZIDAE Fallén, 1823

= freyi Hendel, 1931 Agromyza bicaudata (Hendel, 1931) Agromyza cinerascens Macquart, 1835 Agromyza demeijerei Hendel, 1920

Agromyza erythrocephala Hendel, 1920

Agromyza flaviceps Fallén, 1823

Agromyza graminicola Hendel, 1931

Agromyza idaeiana Hardy, 1853

- = potentillae (Kaltenbach, 1864)
- = spiraeae Kaltenbach, 1867
- = stackelbergi (Frey, 1946)

Agromyza igniceps Hendel, 1920

= *lathyri* misid.

Agromyza lapponica Hendel, 1931

Agromyza lucida Hendel, 1920

Agromyza luteitarsis (Rondani, 1875)

= *intermittens* misid.

Agromyza marionae Griffiths, 1963

= alandensis Spencer, 1976

Agromyza mobilis Meigen, 1830

Agromyza nana Meigen, 1830

Agromyza nigrella (Rondani, 1875)

Agromyza nigrescens Hendel, 1920

Agromyza nigripes Meigen, 1830

Agromyza nigrociliata Hendel, 1931

Agromyza orobi Hendel, 1920

Agromyza phragmitidis Hendel, 1922

Agromyza pseudoreptans Nowakowski, 1967

= urticae Nowakowski, 1964 preocc.

Agromyza quadriseta Zlobin, 2001

Agromyza reptans Fallén, 1823

Agromyza rufipes (Meigen, 1830)

Agromyza salicina Hendel, 1922

Agromyza sulfuriceps Strobl, 1898

Agromyza vicifoliae Hering, 1932

HEXOMYZA Enderlein, 1936

Hexomyza schineri (Giraud, 1861)

Hexomyza simplicoides (Hendel, 1920)

MELANAGROMYZA Hendel, 1920

Melanagromyza aenea (Meigen, 1830)

Melanagromyza aeneoventris (Fallén, 1823)

Melanagromyza angeliciphaga Spencer, 1969

Melanagromyza chaerophylli Spencer, 1969

Melanagromyza lappae (Loew, 1850)

Melanagromyza nigrissima Spencer, 1976

Melanagromyza oligophaga Spender, 1990

Melanagromyza pubescens Hendel, 1923

Melanagromyza submetallescens Spencer, 1966

OPHIOMYIA Braschnikov, 1897

Ophiomyia beckeri (Hendel, 1923)

= goniaea (Hendel, 1931)

Ophiomyia cunctata (Hendel, 1920)

Ophiomyia curvipalpis (Zetterstedt, 1848)

Ophiomyia fennoniensis Spencer, 1976

?= eucodonus Hering, 1960

= melandryi misid.

Ophiomyia heringi Starý, 1930

= *penicillata* misid.

Ophiomyia labiatarum Hering, 1937

= *persimilis* misid.

Ophiomyia longilingua (Hendel, 1920)

= rostrata misid.

Ophiomyia maura (Meigen, 1838)

Ophiomyia nasuta (Melander, 1913)

Ophiomyia orbiculata (Hendel, 1931)

- = hexachaeta (Hendel, 1931)
- = nostradamus (Hering, 1933)
- = paracelsus (Hering, 1933)

Ophiomyia pinguis (Fallén, 1820)

Ophiomyia pulicaria (Meigen, 1830)

Ophiomyia ranunculicaulis Hering, 1949

Ophiomyia vitiosa Spencer, 1964

?= alliariae Hering, 1954

PHYTOMYZINAE Fallén, 1823

AMAUROMYZA Hendel, 1931

sg. Amauromyza Hendel, 1931

Amauromyza morionella (Zetterstedt, 1848)

sg. Cephalomyza Hendel, 1931

= *Trilobomyza* Hendel, 1931

Amauromyza chenopodivora Spencer, 1971

= abnormalis misid.

Amauromyza flavifrons (Meigen, 1830)

Amauromyza gyrans (Fallén, 1823)

Amauromyza karli (Hendel, 1927)

= Dizygomyza facialis Frey, 1941 nom. nudum

Amauromyza labiatarum (Hendel, 1920)

Amauromyza luteiceps (Hendel, 1920)

Amauromyza monfalconensis (Strobl, 1909)

AULAGROMYZA Enderlein, 1936

= Paraphytomyza Enderlein, 1936

Aulagromyza buhri (de Meijere, 1938)

Aulagromyza fulvicornis (Hendel, 1935)

Aulagromyza hendeliana (Hering, 1926)

Aulagromyza heringii (Hengel, 1920)

Aulagromyza lucens (de Meijere, 1924)

Aulagromyza luteoscutellata (de Meijere, 1924)

= xylostei misid.

Aulagromyza similis (Brischke, 1880)

Aulagromyza tremulae (Hering 1957)

Aulagromyza tridentata (Loew, 1858)

Aulagromyza trivittata (Loew, 1873)

CALYCOMYZA Hendel, 1931

Calycomyza artemisiae (Kaltenbach, 1856)

Calycomyza subapproximata (Sasakawa, 1955)

CERODONTHA Rondani, 1861

sg. Butomomyza Nowakowski, 1967

Cerodontha caricivora (Groschke, 1954)

Cerodontha eucaricis Nowakowski, 1967

Cerodontha rohdendorfi Nowakowski, 1967

Cerodontha scirpi (Karl, 1926)

- = scutellaris misid.
- = semiposticata misid.

Cerodontha staryi (Starý, 1930)

sg. Cerodontha Rondani, 1861

Cerodontha affinis (Fallén, 1823)

Cerodontha denticornis (Panzer, 1806)

Cerodontha fulvipes (Meigen, 1830)

= femoralis (Meigen, 1838)

Cerodontha hennigi Nowakowski, 1967

= lateralis (Zetterstedt, 1848) preocc.

Cerodontha stackelbergi Nowakowski, 1972

sg. *Dizygomyza* Hendel, 1920

Cerodontha bimaculata (Meigen, 1830)

Cerodontha fasciata (Strobl, 1880)

Cerodontha ireos (Robineau-Desvoidy, 1851)

Cerodontha luctuosa (Meigen, 1830)

Cerodontha morosa (Meigen, 1830)

sg. Icteromyza Hendel, 1931

Cerodontha bohemani (Rydén, 1951)

Cerodontha capitata (Zetterstedt, 1848)

Cerodontha churchillensis Spencer, 1969

Cerodontha geniculata (Fallén, 1823)

Cerodontha lineella (Zetterstedt, 1838)

sg. Phytagromyza Hendel, 1920

Cerodontha flavocingulata (Strobl, 1909)

= *storai* (Frey, 1946)

sg. Poemyza Hendel, 1931

Cerodontha atra (Meigen, 1830)

Cerodontha calamagrostidis Nowakowski, 1967

- = spenceri Nowakowski, 1967
- = tschirnhausi Nowakowski, 1973

Cerodontha calosoma (Hendel, 1931)

Cerodontha imbuta (Meigen, 1838)

= deschampsiae (Spencer, 1957)

Cerodontha incisa (Meigen, 1830)

Cerodontha lateralis (Macquart, 1835)

Cerodontha muscina (Meigen, 1830)

Cerodontha phragmitidis Nowakowski, 1967

Cerodontha pygmaea (Meigen, 1830)

Cerodontha pygmella (Hendel, 1931)

= lapplandica (Rydén, 1956)

Cerodontha spencerae Zlobin, 1993

= inconspicua auct. nec (Malloch, 1914)

Cerodontha thunebergi Nowakowski, 1967

sg. Xenophytomyza Frey, 1946

Cerodontha atronitens (Hendel, 1920)

Cerodontha biseta (Hendel, 1920)

= crassinervis (Frey, 1946)

Cerodontha venturii Nowakowski, 1967

CHROMATOMYIA Hardy, 1849

Chromatomyia asteris (Hendel, 1934)

Chromatomyia ciliata (Hendel, 1935)

Chromatomyia farfarella (Hendel, 1935)

Chromatomyia fuscula (Zetterstedt, 1838)

Chromatomyia glacialis (Griffiths, 1964)

Chromatomyia horticola (Goureau, 1851)

Chromatomyia isicae (Hering, 1962)

Chromatomyia linnaeae Griffiths, 1974

Chromatomyia lonicerae (Robineau-Desvoidy, 1851)

= xylostei (Kaltenbach, 1862) preocc.

Chromatomyia luzulae (Hering, 1924)

Chromatomyia milii (Kaltenbach, 1864)

Chromatomyia nigra (Meigen, 1830)

Chromatomyia norwegica (Rydén, 1957)

Chromatomyia ochracea (Hendel, 1920)

Chromatomyia opacella (Hendel, 1935)

Chromatomyia periclymeni (Hendel, 1922)

Chromatomyia primulae (Robineau-Desvoidy, 1851)

Chromatomyia ramosa (Hendel, 1923)

= nigriventris (Hendel, 1935)

Chromatomyia styriaca Griffiths, 1980

Chromatomyia syngenesiae Hardy, 1849

GALIOMYZA Spencer, 1981

Galiomyza morio (Brischke, 1880)

LIRIOMYZA Mik, 1894

Liriomyza amoena (Meigen, 1830)

Liriomyza angulicornis (Malloch, 1918)

= triglochinae Hendel, 1931

Liriomyza approximata (Hendel, 1920)

Liriomyza artemisicola de Meijere, 1924

Liriomyza bryoniae (Kaltenbach, 1858)

Liriomyza buhri Hering, 1937

= adolescens Frey, 1946

Liriomyza bulbata Hendel, 1931

Liriomyza canescens Spencer, 1976

= graminicola misid.

Liriomyza cannabis Hendel, 1931

Liriomyza congesta (Becker, 1903)

= minima Hendel, 1931

= parva Hendel, 1931

Liriomyza demeijerei Hering, 1930

Liriomyza equiseti de Meijere, 1924

Liriomyza eupatorii (Kaltenbach, 1873)

= orbitella Hendel, 1931

Liriomyza flaveola (Fallén, 1823)

Liriomyza flavopicta Hendel, 1931

Liriomyza freyella Spencer, 1976

Liriomyza hieracii (Kaltenbach, 1862)

Liriomyza infuscata Hering, 1926

Liriomyza lutea (Meigen, 1830)

Liriomyza occipitalis Hendel, 1931

Liriomyza orbona (Meigen, 1830)

Liriomyza pedestris Hendel, 1931

Liriomyza pseudopygmina (Hering, 1933)

Liriomyza ptarmicae de Meijere, 1925

Liriomyza pusilla (Meigen, 1830)

= fasciola (Meigen, 1838)

Liriomyza pusio (Meigen, 1830)

- = graminicola de Meijere, 1924
- = breviseta Frey, 1946

Liriomyza richteri Hering, 1927

Liriomyza sonchi Hendel, 1931

Liriomyza strigata (Meigen, 1830)

= pumila (Meigen, 1830)

Liriomyza tanaceti de Meijere, 1924

Liriomyza taraxaci Hering, 1927

Liriomyza valerianae Hendel, 1932

Liriomyza virgo (Zetterstedt, 1838)

Liriomyza virgula Frey, 1946

Liriomyza wachtlii Hendel, 1920

METOPOMYZA Enderlein, 1936

Metopomyza flavonotata (Haliday, 1833)

Metopomyza interfrontalis (Melander, 1913)

= xanthaspida (Hendel, 1920)

Metopomyza scutellata (Fallén, 1823)

= flavoscutellaris misid.

Metopomyza xanthaspioides (Frey, 1946)

Metopomyza xanthaspis (Loew, 1858)

NAPOMYZA Westwood, 1840

Napomyza achilleanella von Tschirnhaus, 1992

Napomyza bellidis Griffiths, 1967

Napomyza carotae Spencer, 1966

Napomyza cichorii Spencer, 1966

Napomyza elegans (Meigen, 1830)

Napomyza hirticornis (Hendel, 1932)

Napomyza lateralis (Fallén, 1823)

Napomyza maritima von Tschirnhaus, 1981

Napomyza merita Zlobin, 1993

Napomyza plumea Spencer, 1969

NEMORIMYZA Frey, 1946

Nemorimyza posticata (Meigen, 1830)

PHYTOBIA Lioy, 1864

= **Dendromyza** Hendel, 1931

Phytobia aucupariae (Kangas, 1949)

Phytobia cambii (Hendel, 1931)

- = betulae (Kangas, 1935)
- = tremulae (Kangas, 1949)

Phytobia mallochi (Hendel, 1924)

PHYTOLIRIOMYZA Hendel, 1931

Phytoliriomyza arctica (Lundbeck, 1901)

Phytoliriomyza dorsata (Siebke, 1863)

= *Liriomyza fasciata* misid.

= pectoralis misid.

Phytoliriomyza hilarella (Zetterstedt, 1848)

Phytoliriomyza melampyga (Loew, 1869)

Phytoliriomyza mikii (Strobl, 1898)

Phytoliriomyza ornata (Meigen, 1830)

= elegantula (Zetterstedt, 1848)

Phytoliriomyza perpusilla (Meigen, 1830)

PHYTOMYZA Fallén, 1810

Phytomyza abdominalis Zetterstedt, 1848

= *gentianae* misid.

Phytomyza aconitophila Hendel, 1927

Phytomyza actaeae Hendel, 1922

Phytomyza adjuncta Hering, 1928

Phytomyza albiceps Meigen, 1830

= rydeniana Hering, 1949

Phytomyza albipennis Fallén, 1823

Phytomyza anemones Hering, 1925

Phytomyza angelicae Kaltenbach, 1872

Phytomyza angelicastri Hering, 1932

Phytomyza aquilegiae Hardy, 1849

Phytomyza aquilonia Frey, 1946

Phytomyza artemisivora Spencer, 1971

Phytomyza buhriella Spencer, 1969

Phytomyza calthophila Hering, 1931

Phytomyza campanulae Hendel, 1920

Phytomyza chaerophylli Kaltenbach, 1856

- = anthrisci Hendel, 1924
- = carvi Hering, 1931

Phytomyza cirsii Hendel, 1923

= cirsicola Hendel, 1927

Phytomyza continua Hendel, 1920

= polyarthrocera Frey, 1946

Phytomyza crassiseta Zetterstedt, 1860

Phytomyza dasyops Hendel, 1920

Phytomyza diversicornis Hendel, 1927

Phytomyza enigmoides Hering, 1937

= *enigma* Hering, 1936 preocc.

Phytomyza erigerophila Hering, 1927

Phytomyza eumorpha Frey, 1946

Phytomyza evanescens Hendel, 1920

- = *calthivora* misid.
- = *opaca* misid.

Phytomyza fallaciosa Brischke, 1880

= pseudohellebori Hendel, 1920

= bonsdorfi Hendel, 1935

Phytomyza flavicornis Fallén, 1823

Phytomyza flavofemorata Strobl, 1893

- = distantipila Frey, 1950
- = aristata misid.
- = pratensis de Meijere, 1926

Phytomyza glabra Hendel, 1935

Phytomyza glechomae Kaltenbach, 1862

? Phytomyza gymnostoma Loew, 1858

Phytomyza hellebori Kaltenbach, 1872

Phytomyza hendeli Hering, 1923

Phytomyza heracleana Hering, 1937

Phytomyza hirsuta Spencer, 1976

Phytomyza isais Hering, 1936

Phytomyza krygeri Hering, 1949

Phytomyza lappae Goureau, 1851

Phytomyza linguae Lundqvist, 1947

Phytomyza marginella Fallén, 1823

Phytomyza minuscula Goureau, 1851

Phytomyza murina Hendel, 1935

Phytomyza mylini Hering, 1954

Phytomyza nigrifemur Hering, 1934

= semitenella Hendel, 1935

Phytomyza nigripennis Fallén, 1823

Phytomyza nigritula Zetterstedt, 1838

Phytomyza notata Meigen, 1830

Phytomyza obscurella Fallén, 1823

Phytomyza pauliloewii Hendel, 1920

Phytomyza pimpinellae Hendel, 1924

Phytomyza plantaginis Robineau-Desvoidy, 1851

Phytomyza ptarmicae Hering, 1937

Phytomyza pubicornis Hendel, 1920

Phytomyza pullula Zetterstedt, 1848

Phytomyza ranunculi (Schrank, 1803)

Phytomyza ranunculivora Hering, 1932

Phytomyza rapunculi Hendel, 1927

= campanulivora Spencer, 1971

Phytomyza rhabdophora Griffiths, 1964

Phytomyza rostrata Hering, 1934

Phytomyza rufescens von Roser, 1840

Phytomyza rufipes Meigen, 1830

Phytomyza rydeni Hering, 1934

Phytomyza sedicola Hering, 1924

Phytomyza selini Hering, 1922 Phytomyza socia Brischke, 1880 Phytomyza soenderupi Hering, 1941 Phytomyza solidaginis Hendel, 1920

Phytomyza spinaciae Hendel, 1935

= affinis misid.

Phytomyza spoliata Strobl, 1906

Phytomyza spondylii Robineau-Desvoidy, 1851

= *pastinacae* misid.

Phytomyza subrostrata Frey, 1946

Phytomyza tanaceti Hendel, 1923

Phytomyza tenella Meigen, 1830

Phytomyza thysselini Hendel, 1923

Phytomyza trollii Hering, 1930

Phytomyza tussilaginis Hendel, 1925

Phytomyza varipes Macquart, 1835

Phytomyza virgaureae Hering, 1926

Phytomyza virosae Pakalniškis, 2000

Phytomyza wahlgreni Rydén, 1944

= robustella misid.

PSEUDONAPOMYZA Hendel, 1920

Pseudonapomyza atra (Meigen, 1830)

Pseudonapomyza europaea Spencer, 1973

SELACHOPS Wahlberg, 1844

Selachops flavocinctus Wahlberg, 1844

Excluded species

Cerodontha silvatica (Groschke, 1957) misidentification Dizygomyza facialis Frey, 1941 nomen nudum Liriomyza huidobrensis (Blanchard, 1926) imported Liriomyza sativae Blanchard, 1938 imported Liriomyza trifolii (Burgess in Comstock, 1880) imported Phytomyza atricornis Meigen, 1838 nomen dubium Phytomyza brischkei Hendel, 1922 misidentification

Notes

Agromyza nigrociliata. First recorded from Finland by Thuneberg in Kaisila (1960). The species have since been found at several sites on the south coast (leg. L. Tiensuu, K. Winqvist & J. Kahanpää).

- Cerodontha pygmella. First described from the Russian Far East, then redescribed from northern Sweden as *C. lapplandica* (Rydén) (synonymized by Zlobin 2001) and from Poland as *C. tatrica* Nowakowski (syn. Spencer 1976). The status of this species as distinct from *C. pygmaea* has been doubtful, but Zlobin (2001) pointed out that while *C. pygmella* and *C. pygmaea* are difficult to identify reliably as adults, the larvae are clearly different.
- *Liriomyza pedestris* Hendel, 1931 is a valid species according to Zlobin (2003). The Finnish material of the *L. flaveola*-group needs re-examination.
- *Ophiomyia fennoniensis* Spencer is probably a synonym of *O. eucodonus* Hering. Likewise, *Ophiomyia vitiosa* Spencer is probably a synonym of *O. alliariae* Hering, 1954 (M. von Tschirnhaus, pers. comm.)
- **Phytomyza angelicae** and **P. aegopodii**. Spencer (1976) synonymized *P. aegopodii* Hendel, 1923 with *P. angelicae* Kaltenbach. Pakalniškis (2000) reinstated *P. aegopodii* as a valid species but opinions on its status are not unanimous. The Finnish material examined so far represents typical *P. angelicae sensu* Pakalniškis (2000).
- *Phytomyza brischkei*. Recorded by Hackman (1980) from Finland, probably on the basis of Frey (1937). As Spencer (1976) points out, this is a misidentification.
- *Phytomyza gymnostoma*. Recorded from Finland in Fauna Europaea (Martinez 2011), but I have been unable to trace the original records. Possibly imported to Finland with leeks or onions (*Allium*), its host plants. *P. gymnostoma* is an expanding species with Central Europe and has lately damaged crops of *Allium* species (Darvas et al. 1988).
- Phytomyza linguae. Spencer (1976) synonymised this species with *P. ranunculivora* Hering. Pakalniškis (1997) reinstated it as a valid species. Both species occur in Finland: L. Tiensuu reared *P. ranunculivora* from *Ranunculus acer* and *P. linguae* from *Ranunculus lingua* from mines collected from Vehkalahti in 1972–3.

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